

Interactive comment on “Biogenic isoprenoid emissions under drought stress: Different responses for isoprene and terpenes” by Boris Bonn et al.

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The present manuscript addresses parameterization of isoprenoid emissions by vegetation under drought. The authors use available data on different tree types to describe the effect of soil water availability on biogenic emissions. Specifically, the present study is focused on the individual behaviour of isoprene, mono- and sesquiterpene exchange fluxes in correlation with soil moisture using different hypotheses: 1) a stepwise effect proposed by Guenther et al. 20006; 2) a growth rate behaviour (in the present ms); 3) pattern of hydraulic conductivity (in the present ms); and 4) a stress defense response (in the present ms). The manuscript could contribute for better understanding

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of processes controlling the biogenic emissions in conditions reflecting climate change. The authors correctly describe related studies and indicate their contribution. In this respect, the paper addresses relevant scientific question within the scope of Biogeosciences. The conclusions made are adequate and are supported by the data presented in the manuscript. The scientific methods are properly outlined. However, it is not clear how the watered (reference) *Fagus sylvatica* trees were separated from those to which water was not supplied at Freiburg nursery. For clarity, I would suggest more details about the location of the trees namely: 1) what is the distance between the two groups of trees? 2) How the water spreading into the soil from watered to non-watered side was prevented? 3) Taking into account the depth of *F. sylvatica* root system, is it enough to measure SWCv at the deepest of 75 cm in order to get correct effect of soil water availability on trees? The title reflects the paper content and the abstract provides adequate summary of the results. The manuscript is well structured. The figures are enough informative and with good quality. The used abbreviations are defined in Table 1. There is no need any parts of the paper to be changed. The quoted references are appropriate and reflect the “state of the art” in the field. The amount and quality of the supplementary material is adequate.

Minor comments: Line 47: Change Kelvin (K) to Celsius. Line 158-162: reference(s) has to be provided related to ROS detoxification/reduction of BVOCs. Line 203: after “(Eq. 5)” change to “c)” instead of “a)”.

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